

## CLAIMS:

1. A spinning preparation machine with a drafting device (1a) for drafting at least one sliver [fiber band, slubbing] (2), in particular a carding, drafting (1) or combing machine, with at least one microwave sensor (3; 30; 3000) at the inlet and/or at the outlet of the drafting device (1a) for measuring the sliver thickness of the at least one sliver (2), which microwave sensor (3; 30; 3000) comprises at least one cavity resonator (300a; 3000a) through which the at least one sliver (2) is to be guided during the measurements, characterized by means (14; 15; 45) for preventing temperature-conditioned deformations of the resonator walls (302, 306) of the microwave sensor (3; 30; 3000) during the measurements.

2. The machine according to Claim 1, characterized in that the means comprise at least one material with a low coefficient of thermal expansion from which the resonator walls (302, 30) are manufactured at least in sections.

3. The machine according to Claim 2, characterized in that the material is a steel with a low thermal expansion.

4. The machine according to Claim 3, characterized in that the steel has a thermal expansion at customary operating temperatures of approximately 1/5 and preferably approximately 1/10 of the thermal expansion of steel customarily used in textile machines.

5. The machine according to Claim 3 or 4, characterized in that the steel is an Ni36 steel (e.g., Invar® steel) or a steel comparable to it.

6. The machine according to one of the previous claims, characterized in that the means (14; 15; 45) comprise thermal insulating means (45) for thermally decoupling the sensor (3; 30; 3000) from the rest of the machine.

7. The machine according to one of the previous claims, characterized in that the insulation means (45) comprise connecting elements for fastening the at least one sensor (3; 30; 3000), which connecting means have a low thermal conductivity.

8. The machine according to one of the previous claims, characterized in that the insulation means (45) comprise a thermally screening housing (45) surrounding the sensor (3; 30; 3000) at least partially.

9. The machine according to one of the previous claims, characterized in that the means (14; 15; 45) comprise active temperature adjustment means (14; 15) for adjusting a substantially constant temperature of the resonator walls (302, 306).

10. The machine according to Claim 9, characterized in that the temperature adjustment means (14; 15) can be regulated.

11. The machine according to one of the previous claims, characterized in that at least one temperature-measuring element (40; 41) is provided for measuring the temperature of the inner resonator chamber and/or of the resonator walls (302, 306).

12. The machine according to one of the previous claims, characterized in that the regulation of temperature can be carried out by a separate regulating unit and/or by the evaluation unit of the microwave sensor (4; 31) and/or by the central machine control (10).

13. The machine according to one of the previous claims, characterized in that the temperature adjustment means (14; 15) comprise heating means (14; 15).

14. The machine according to one of the previous claims, characterized in that the heating means (14) comprise at least one heating foil.

15. The machine according to one of the previous claims, characterized in that at least one resonator wall (302, 306) can be directly heated.

16. The machine according to one of the previous claims, characterized in that the temperature adjustment means (14; 15) comprise cooling means.

17. The machine according to one of the previous claims, characterized in that the temperature adjustment means comprise means for producing and guiding an airflow (50; 51) through the resonator and/or past the resonator.

18. The machine according to one of the previous claims, characterized in that the airflow (50; 51) is designed as a suction flow or as a blowing flow.

19. The machine according to one of the previous claims, characterized in that the airflow (50; 51) can also be used to clean the resonator chamber and/or bordering sections of the machine.

20. The machine according to one of the previous claims, characterized in that the temperature adjustment means (14; 15) comprise at least one Peltier element.

21. A cavity resonator (300a; 3000a) of a microwave sensor (300; 3000) for a textile machine, whereby at least one sliver (2) is guided through the cavity resonator during the measurements, characterized in that the resonator walls (302, 306) are manufactured at least in sections from a work material with a low coefficient of thermal expansion.

22. The resonator according to Claim 21, characterized in that the material is a steel with low thermal expansion.

23. The resonator according to Claim 21, characterized in that the steel has a thermal expansion at customary operating temperatures of approximately 1/5 and preferably approximately 1/10 of the thermal expansion of steel customarily used in textile machines.

24. The resonator according to Claim 22 or 23, characterized in that the steel is a Ni36 steel (e.g., Invar® steel) or a steel comparable to it.